REMARKS/ARGUMENTS

Claims 1-5, 7-19, and 21-22 remain in the application. Claims 1, 7, and 16 have been amended. Claims 6 and 20 have been canceled. Reconsideration of this application, as amended, is respectfully requested.

Claim 1 and 16 have been amended to specify that the pumping element includes a piston slider assembly having a piston head connected to a main body, the piston head is adapted to contact the pumping chamber, and the single pressure sensor is connected to the pumping element between the piston head and the main body. Support for this amendment can be found at page 3, lines 25-27, at page 8, lines 20-28 of the specification, in claims 6 and 20, as originally filed, and in FIGS. 4 and 5. Claim 7 has been amended to improve the wording of the claim. Claim 7 has been further amended to specify that the medical pump has only a single pressure sensor.

Claims 1-5 and 16-19 were rejected under 35 U. S. C. §102(b) as being anticipated by Epstein et al. (US Patent 5,464,392). This rejection is respectfully traversed for the following reasons.

Epstein et al., U. S. Patent No. 5,464,392 (hereinafter "Epstein et al.), discloses an infusion system for controllably infusing preselected fluids from any one or more of plural fluid inlet ports either simultaneously or in time sequence through at least one patient output port and into the circulatory system of a patient in a predetermined time sequence. The system includes a disposable cassette having a pumping chamber connected to a fluid channel and a pressure chamber connected to the pumping chamber via a fluid flow channel. A pressure transducer is operatively connected to the pressure chamber. An input and output valve actuator is operatively connected to the plural fluid input valves and to the patient output valve. A pumping actuator is operatively connected to the pump chamber. A system controller is operatively connected to the input and output valve actuator, to the vent valve actuator, to the cassette-locked-in-place sensor, to the analog to digital converter, and to the pumping actuator. Position sensors are operatively connected to a pump control processor and latched drives to provide signal indications representative of the rotary position of a valve stepper motor and the rotary position of a pump stepper motor.

Claims 1, 7, and 16, and the claims depending from claims 1, 7, and 16 (i.e., claims 2 and 3 depending directly from claim 1, claims 4 and 5 depending indirectly from claim 1, claims 8-10 and 13-15 depending directly from claim 7, claims 11 and 12 depending indirectly from claim 7, claims 17 and 21 depending directly from claim 16, claims 18, 19, and 22 depending indirectly from claim 16) require that a pumping element include a piston slider assembly adapted to intermittently pressurize the pumping chamber during a pumping cycle, the piston slider assembly having a piston head connected to a main body, the piston head being adapted to contact the pumping chamber. Epstein et al. fails to disclose or suggest that the pump referred to therein include a pumping element including a piston slider assembly adapted to intermittently pressurize the pumping chamber during a pumping cycle, the piston slider assembly having a piston head connected to a main body, the piston head being adapted to contact the pumping chamber. Accordingly, it is submitted that Epstein et al. fails to anticipate claims 1, 7, and 16 and the claims depending directly or indirectly from claims 1, 7, and 16.

Claims 6-14 and 20-22 were rejected under under 35 U. S. C. §103(a) as being unpatentable over Epstein et al. (US Patent 5,464,392), in view of Pastrone (US Patent 4,453,931). This rejection is respectfully traversed for the following reasons.

Pastrone, U. S. Patent No. 4,453,931 (hereinafter "Pastrone"), discloses a pumping piston which reciprocates against a flexible diaphragm and thereby pumps liquid free of gas bubbles through an intravenous metering device.

As noted by the Examiner, Epstein et al. fails to teach that the pumping element is a piston slider assembly having a single pressure sensor. While Pastrone discloses a reciprocating pumping piston, Pastrone fails to disclose or suggest that the single pressure sensor is connected to the pumping element between the piston head and the main body. In Pastrone, it appears that the pressure transducer 57 is not positioned between the piston head and the main body. For this reason, it is submitted that the combination of Epstein et al. and Pastrone fails to render claims 7-14 and 21-22 obvious to one of ordinary skill in the art.

Claim 15 was rejected under under 35 U. S. C. §103(a) as being unpatentable over Epstein et al. (US Patent 5,464,392), in view of Pastrone (US Patent 4,453,931), and in further view of Das et al. (US Patent Application 2002/0128594 A1). This rejection is respectfully traversed for the following reasons.

Das et al., U. S. Patent Application Publication No. US 2002/0128594 A1 (hereinafter "Das et al."), discloses an infusion device having processing circuitry that includes a force sensor for providing signals indicative of the presence of occlusions along the infusion path.

As shown previously, Epstein et al. fails to teach that the pumping element is a piston slider assembly having a single pressure sensor, and Pastrone fails to disclose or suggest that the single pressure sensor is connected to the pumping element between the piston head and the main body. Claim 15 requires all of the features of claim 7. The combination of Epstein et al., Pastrone, and Das et al. fails to disclose or suggest the following elements of claim 7:

> (1) a pumping element including a piston slider assembly adapted to intermittently pressurize the pumping chamber during a pumping cycle, the piston slider assembly having a piston head connected to a main body, the piston head being adapted to contact the pumping chamber; and
>
> (2) a single pressure sensor being connected to the pumping element between the piston head and the main body to detect the pressure exerted by the pumping element on the pumping chamber

For this reason, it is submitted that the combination of Epstein et al., Pastrone, and Das et al. fails to render claim 15 obvious to one of ordinary skill in the art.

In view of the foregoing, it is submitted that claims 1-5, 7-19, and 21-22, as amended, are in condition for allowance and official Notice of Allowance is respectfully requested.

Respectfully submitted,
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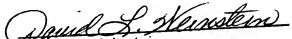

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